MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 1, 2015 / 2016

PPS 0335 – PROBLEM SOLVING AND PROGRAMMING

(Foundation in Information Technology)

15 OCTOBER 2015
2.30 p.m. - 4.30 p.m.
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of 3 pages (excluding the cover page) with 6 questions only.
2. Attempt **FIVE** out of **SIX** questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please write all your answers in the Answer Booklet provided.

Instructions: Attempt **FIVE** out of **SIX** questions. Write your answers in the Answer Booklet.

QUESTION 1 [10 Marks]

a. Determine whether the following problems can be solved through algorithmic solution or heuristic solution. Briefly justify your answer.

i. You purchase three items at these prices: RM11.90, RM7.00 and RM5.90. You want to know how much you have spent for the three items.
ii. You play a computer game called "Maze Games".
iii. You calculate your Cumulative Grade Point Average (CGPA) of your three semester university.
iv. You wash clothes using washing machine.
v. You want to improve your performance in mathematic class.

(5 marks)

b. Use suitable variables to write an equation to solve the following problems.
i. The total amount spent in a month on your phones, food and books.
ii. The difference between the highest and the lowest exam mark.
iii. There are 30 baskets in which that there are 20 balls in each basket. Find the total of the balls.

(3 marks)

c. Find the result of the following operations:
i. (NOT *false*) AND (NOT *true*)
ii. 1.05 + 4.5 * 3.5
iii. "Z" < "C"
iv. 60 MOD 20

(2 marks)

QUESTION 2 [10 Marks]

You are to write a computer program to read the prices of up to 100 items and to count and print the total of item that has price greater or equal to RM100.

a. Complete the Problem Analysis Chart (PAC) below for the above problem.

Given Data	Required Results
Processing Required	Solution Alternatives

(5 marks)

b. Using an Automatic-Counter loop, write an algorithm for the above problem.

(5 marks)

Continued ...

QUESTION 3 [10 Marks]

The EverydayOnSales online shopping store will reward gift vouchers to its members who shop online from the month of June till August. The detail of the reward program is as below.

Amount Spent(RM)	Gift Voucher (RM)
>= 100	10
>= 300	30
>= 500	50
>= 1000	100
>= 5000	500

Develop **TWO (2)** pseudocodes (only the *if/then/else* part) to determine the gift voucher received based on the amount spent. Use positive logic technique for the first pseudocode and negative logic technique for the second pseudocode.

(10 marks)

QUESTION 4 [10 Marks]

a. Complete the Input Processing Output (IPO) chart below that will convert gallons to liters. Given: *1 gallon = 3.78541 liter.*

(4.5 marks)

IPO chart

Input	Processing	Module Reference	Output

b. Draw a complete flowchart for problem in 4(a). In the flowchart, test if the input is zero or a negative number. If yes, repeat the loop to ask another input.

(5.5 marks)

QUESTION 5

a. When develop a loop structure, there is a difference between these two statements:

counter = counter + 1;

sum = sum + value;

Explain the difference.

(2 marks)

b. Write a pseudocode to find and print the average score for five students and use While/WhileEnd loop structure.

(4.5 marks)

c. Write a pseudocode to count and print number of age entered. Use Repeat/Until loop structure and value 0 to stop the loop.

(3.5 marks)

Continued ...

QUESTION 6 [10 Marks]

a. Complete the data dictionary below with correct and meaningful variables and correct data types.

(7 marks)

Item	Variable Name	Data Type
The number of students in a class	i.	i.
The grade (a letter) attained by a student in the class	ii.	ii.
The average mark in a class	iii.	iii.
The distance between two points	iv.	iv.
The population of a city	v.	v.
The weight of a postage stamp	vi.	vi.
The car license plate number	vii.	vii.

b. Which of the following are valid variables names? If invalid, explain why.

i. BILL
ii. Sue's
iii. two-way
iv. int
v. _amount
vi. 2ndclass

(3 marks)

End of Paper